Form PTO-1390 (Rev. 12-29-99) US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NO
H 2867 PCT/US

U S APPLICATION NO (if known see 37 CFR 1 5)
09/701196

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP99/03362	**May 15, 1999**	**May 27, 1998**

TITLE OF INVENTION

PREPARATION FOR TREATING HUMAN SKIN AND HUMAN HAIR COMPRISING A SPECIAL ACTIVE INGREDIENT COMBINATION, AND THE USE OF THIS ACTIVE INGREDIENT COMBINATION

APPLICANT(S) FOR DO/EO/US

Ullrich Bernecker, Detlef Hollenberg

Applicant herewith submits to the United States Designated/Elected Office (EO/DO/US) the following items and other information:

1. ■ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. ☐ This express request to begin national examination procedures (35 U S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1).

4. ■ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. ■ A copy of the International Application as filed (35 U.S C. 371(c)(2)).
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ■ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).

6. ■ A translation of the International Application into English (35 U.S C 371(c)(2)).

7. ■ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ■ have not been made and will not be made.

8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. ■ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). **(UNEXECUTED)**

10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1 98

12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3 31 is included.

13. ■ A FIRST preliminary amendment
    ☐ A SECOND or SUBSEQUENT preliminary amendment.

14. ☐ A substitute specification.

15. ☐ A change of power of attorney and/or address letter.

16. ☐ Other items or information:

"Express Mail" mailing label number **EL615774520US**

529 Rec'd PCT/PTC 27 NOV 2000

U.S. Application No. (If known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/701196	PCT/EP99/03362	H 2867 PCT/US

17.■ The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.....**$1,000.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....**$860.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37CFR 1.445(a)(2)) paid to USPTO **$710.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$690.00**

International preliminary examination fee paid to USPTO (37CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4).....**$100.00**

	CALCULATIONS	PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 860	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date 37 (CFR 1.492(e)).	$ 0	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	1 - 20 =	0	0 X $18.00	$ 0	
Independent Claims	1 - 3 =	0	0 X $80.00	$ 0	
Multiple dependent claims (s)(if applicable)		0	+ $270.00	$ 0	
TOTAL OF ABOVE CALCULATIONS =				$ 860	
Reduction of ½ for filing by small entity, if applicable. A Small Entity Statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				$ 0	
SUBTOTAL =				$ 860	
Processing fee of **$130.00** for furnishing the English translation later the ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				$ 0	
TOTAL NATIONAL FEE =				$ 860	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property +				$ 0	
TOTAL FEES ENCLOSED =				$ 860	
				Amount to be: refunded:	$----------
				charged:	$ 860. 00

a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

b. ■ Please charge my Deposit Account No. 01-1250 in the amount of $ 860.00 to cover the above fees. A duplicate copy of this sheet is enclosed. Order No. 00-1195 .

c. ■ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 01-1250 . A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO: Henkel Corporation, Law Dept.
2500 Renaissance Blvd., Suite 200
Gulph Mills, PA 19406

Kimberly R. Hild
SIGNATURE:

Kimberly R. Hild
NAME ATTORNEY FOR APPLICANT

39,224
REGISTRATION NUMBER

Express Mail
Label No. EL615774520US

PATENT
Docket H 2867 PCT/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re: PCT/EP99/03362

International Filing Date: May 15, 1999
Priority Date Claimed: May 27, 1998
Applicant: Bernecker et al.
Title: PREPARATION FOR TREATING HUMAN SKIN AND HUMAN HAIR COMPRISING A SPECIAL ACTIVE INGREDIENT COMBINATION, AND THE USE OF THIS ACTIVE INGREDIENT COMBINATION
Applicants' Reference: H 2867 PCT/US

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Box PCT
Washington, DC 20231

Attn: DO/EO/US

Sir:

Before examining this application, please enter these amendments:

IN THE CLAIMS:

Please cancel claims 2 to 15 without prejudice.

Should any fees be deemed necessary to enter this amendment, please charge them to Deposit Account No. 01-1250.

Respectfully submitted,

Kimberly R. Hild

Kimberly R. Hild
Reg. No. 39,224
Attorney for Applicants
(610) 278-4964

Date: November 27, 2000
Henkel Corporation
Patent Department
2500 Renaissance Blvd., Suite 200
Gulph Mills, PA 19406
KRH/bj

PATENT
Docket No. H 2867 PCT/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Bernecker et al.,

Serial No. 09/701,196 **Examiner:** To be assigned

International Application No. PCT/EP99/03362

Filed: To be assigned **Art Unit:** To be assigned

Title: PREPARATION FOR TREATING HUMAN SKIN AND HUMAN HAIR COMPRISING A SPECIAL ACTIVE INGREDIENT COMBINATION, AND THE USE OF THIS ACTIVE INGREDIENT COMBINATION

"Express Mail Post Office to Addressee" service mailing label Number EL615776145US

SUPPLEMENTAL PRELIMINARY AMENDMENT

Box PCT
Assistant Commissioner for Patents
Washington, DC 20231

Attn: DO/EO/US

Sir:

Prior to examining this application, please amend the application as follows:

In the Specification (Using the English Translation):

On page 1 of the English translation, on a separate line between the title and line 1, please insert the following paragraph:

-- Cross Reference To Related Applications

This application is a national stage application under 35 U.S.C. § 371 of international application PCT/EP99/03362 filed on May 15, 1999, the international application not being published in English. This application also claims priority under 35 U.S.C. §119 to DE 198 23 552.6 filed on May 27, 1998. --

On page 1, on line 11, please insert -- Background of the Invention -- .

On page 1, on line 33, please insert -- Summary of the Invention --.

On page 2, on line 6, please insert -- Detailed Description of the Invention --.

On page 20, line 1, please delete "**Patent Claims**" and insert therefor:
-- What is claimed is: --

On a separate page, after page 21, please insert the enclosed Abstract of the Disclosure.

In the Claims

Please cancel Claims 1 to 15, without prejudice.

Please add the following new claims:

-- 16. (NEW) A composition for treating hair or skin comprising:

(a) biotin; and

(b) at least one glycoprotein, wherein the glycoprotein is a vegetable glycoprotein.

17. (NEW) The composition of Claim 16, wherein the glycoprotein originates from a primary plant cell wall.

18. (NEW) The composition of Claim 17 wherein the glycoprotein originates from soybeans, rice, oats, wheat, potatoes, peaches, almonds, mushrooms or peas, or combinations thereof.

19. (NEW) The composition of Claim 18, wherein the glycoprotein has a carbohydrate portion comprising galactose, arabinose, mannose, glucose or fucose, or combinations thereof.

20. (NEW) The composition of Claim 19 wherein the glycoprotein is present in the composition in an amount of from 0.0001 weight percent to 5 weight percent, based on the total weight of the composition.

21. (NEW) The composition of Claim 20 wherein the biotin is present in the composition in an amount of from 0.000001 weight percent to 0.5 weight percent, based on the total weight of the composition.

22. (NEW) The composition of Claim 21 further comprising at least one penetration auxiliary.

23. (NEW) The composition of Claim 22 further comprising at least one protein hydrolysate.

24. (NEW) The composition of Claim 23 further comprising at least one vitamin that is panthenol, tocopherol or vitamin A, or precursors or derivatives thereof.

25. (NEW) The composition of Claim 24 further comprising at least one plant extract or honey extract.

26. (NEW) The composition of Claim 25 further comprising at least one a film former.

27. (NEW) The composition of Claim 16 wherein the composition is a skin treatment composition.

28. (NEW) The composition of Claim 16 further comprising at least one penetration auxiliary.

29. (NEW) The composition of Claim 16 further comprising at least one protein hydrolysate.

30. (NEW) A composition for treating hair or skin comprising:

(a) from 0.000001 weight percent to 0.5 weight percent biotin; and

(b) from 0.0001 weight percent to 5 weight percent of at least one glycoprotein, wherein the glycoprotein originates from soybeans, rice, oats, wheat, potatoes, peaches, almonds, mushrooms or peas, or combinations thereof and has a carbohydrate portion comprising galactose, arabinose, mannose, glucose or fucose, or combinations thereof.

31. (NEW) A method of treating hair or skin comprising applying to hair or skin an active ingredient composition comprising biotin and at least one glycoprotein, wherein the glycoprotein is a vegetable glycoprotein.

32. (NEW) The method of Claim 31 wherein the active ingredient composition remains on the skin or hair following the application.

33. (NEW) A method of treating skin comprising applying to skin an active ingredient composition comprising biotin and at least one glycoprotein.

34. (NEW) The method of Claim 33 wherein the active ingredient composition remains on the skin following the application.

35. (NEW) A method of increasing production of protein in human cells comprising applying to hair or skin an active ingredient composition comprising biotin and at least one glycoprotein.

36. (NEW) The method of Claim 35 wherein the composition is applied to the skin.

37. (NEW) The method of Claim 35 wherein the active ingredient composition remains on the skin or hair following the application. --

REMARKS

Applicants respectfully request the Examiner to enter the above amendments prior to examination of this application.

Status of Claims

Claims 16 to 37 will be pending after entry of the present amendment. Claims 1 to 15 are being canceled without prejudice, and Claims 16 to 37 are being added.

Amendment

The specification is being amended to insert section headers and an abstract of the disclosure in accordance with 37 CFR §1.77 to better conform with US patent practice. The specification is also being amended to insert a cross-reference to related applications in accordance 37 CFR §1.78 and to claim priority to those applications listed therein.

New Claims 16 to 37 replace original claims 1 to 15 and are being presented to better comply with US patent practice. These new claims are supported by the specification for example as shown in the Table below (cites to the specification are for the English translation):

Claim	Support in Specification
16	Page 2, lines 6 to 37
17	Page 3, lines 1 to 2
18	Page 3, lines 4 to 7
19	Page 3, lines 15 to 20
20	Page 3, lines 30 to 35
21	Page 3, lines 25 to 30
22, 28	Page 4, lines 10 to 23
23, 29	Page 4, line 34 to page 5, line 12
24	Page 5, line 14 to 18
25	Page 6, lines 10 to 25
26	Page 8, lines 19 to 22
27	Page 11, lines 1 to 7

Claim	Support in Specification
30	Page 2, line 6 to page 3, line 34
31	Page 2, lines 36 to 37, page 9, lines 34 to 37, and page 11, lines 1 to 7, Page 16, lines 7 to 12
32, 34, 37	Page 10, lines 1 to 25, page 11, line 1 to 7
33, 36	Page 11, lines 1 to 7, page 16, lines 7 to 12

No new matter is added by the new claims.

CONCLUSION

Applicants respectfully request early and favorable notification of allowance of all pending claims. The Assistant Commissioner is authorized to charge any deficiency in the required fee or to credit any overpayment to Deposit Account 01-1250 in connection with this amendment.

Respectfully submitted,

Kimberly R. Hild

Kimberly R. Hild
(Reg. No. 39,224)
Attorney for Applicants
(610) 278-4964

Date April 9, 2001
Henkel Corporation
Law Department
2500 Renaissance Boulevard, Suite 200
Gulph Mills, PA 19406

"Preparation for treating human skin and human hair comprising a special active ingredient combination, and use of this active ingredient combination"

The invention relates to preparations comprising a special active ingredient combination of biotin and at least one glycoprotein for treating human skin and human hair, and to the use of this active ingredient combination.

Human skin and human hair are treated with cosmetic preparations in diverse ways. Since time immemorial, this has included, in particular, the cleansing and the care of skin and hair. However, recent times have seen ever greater interest in products which, in addition to the customary cleansing or care, are intended to preserve or restore a condition which corresponds to a certain ideal of beauty. Apart from the covering of gray hair, this includes, in particular, the maintenance or restoration of vital hair and a full head of hair, and also counteraction of the development of wrinkles in the skin. There is therefore an increasing need for new active ingredients or active ingredient combinations having corresponding positive effects on skin and hair. These active ingredients and active ingredient combinations can be applied in the form of special formulations. However, it is also advantageously the aim that they can be incorporated into customary skin- and hair-treatment compositions and then develop the desired additional effect upon application of said compositions.

Surprisingly, we have now found that an active ingredient combination consisting of biotin and at least one glycoprotein increases the protein production in human cells upon topical application. A corresponding application results not only in the above-mentioned

undesired developments being counteracted, but also, associated with the increase in the vitality of cells, the vitality of skin and hair significantly increases, which is evident, for example, from improved skin elasticity.

The invention therefore firstly provides preparations for treating human skin and human hair, characterized in that they comprise an active ingredient combination consisting of biotin and at least one glycoprotein.

Both biotin (see e.g. Fey, Otto, Wörterbuch der Kosmetik [Cosmetics Dictionary], 4th edition, Wissenschaftliche Verlagsgesellschaft mbH Stuttgart, 1997, page 39) and glycoproteins (see e.g. Product Specification 12/94 regarding "Phytodermin" from the company Chemisches Laboratorium Dr. Kurt Richter GmbH, Berlin) are known as active ingredients for cosmetics. However, these publications make no reference to the combination according to the invention or the influence thereof on the protein production in human cells and the positive effects on human skin and hair effected thereby.

The first component of the active ingredient combination according to the invention is biotin. Biotin is understood as meaning (3aS,4S,6aR)-2-oxohexahydrothienol[3,4-d]-imidazole-4-valeric acid. The compound is also referred to as vitamin H or vitamin B_7.

The active ingredient combination according to the invention also comprises at least one glycoprotein. Glycoproteins is the term used to refer to compounds which contain carbohydrates and protein in the same molecule.

Preference is given according to the invention to glycoproteins of vegetable origin, in which case the

glycoprotein originates in particular from a primary plant cell wall.

Glycoproteins which have proven particularly suitable according to the invention are those from soybeans, rice, oats, wheat, potatoes, peaches, almonds, mushrooms and peas. Glycoproteins from soybeans are particularly preferred according to the invention. From the primary cell wall of soybeans, it is possible to obtain, in particular, hydroxyproline-rich glycoproteins or extensins, arabinogalactan proteins and proline-rich proteins. Approximately 20-30% by weight of the dry mass of the primary cell wall of soybeans consist of these three components.

As the carbohydrate portion, the glycoproteins used according to the invention preferably comprise arabinose, galactose, mannose, glucose and fucose. Arabinose and galactose are preferred carbohydrates.

A glycoprotein which is particularly suitable according to the invention is the product obtainable commercially under the name Phytodermin®.

The preparations according to the invention preferably comprise biotin in amounts of 0.000001-0.5% by weight, based on the total preparation. Amounts of 0.000005-0.05% by weight, in particular 0.00001-0.01% by weight, are particularly preferred.

The glycoproteins are preferably present in the preparations according to the invention in amounts of from 0.0001-5% by weight, in particular 0.001-1% by weight, likewise based on the total preparation.

The active ingredient combination according to the invention can be incorporated, in principle, into all customary hair- and skin-treatment compositions provi-

ded known instabilities do not prevent this. Thus, biotin is unstable, for example, in combination with strong oxidizing agents. However, in principle, it is not the intention to exclude preparations with such incompatibilities within the scope of the present invention. Instead, it may be entirely possible according to the invention to pack in this case one of the incompatible components separately and only to add it to the preparation directly prior to application.

According to a first preferred embodiment, the preparations according to the invention also comprise at least one penetration auxiliary.

Penetration auxiliaries which can be used according to the invention are, for example, polyethylene glycols having molar masses of from about 200 to 45,000, in particular about 400, glycols, urea and glucose, and glycerol, propylene glycol monoethyl ether, carbonates, hydrogencarbonates, guanidines, and primary, secondary and tertiary phosphates. Preferred penetration auxiliaries are the polyethylene glycols, propylene glycols, butylene glycols, urea and glucose.

The preparations according to the invention preferably comprise the penetration auxiliaries in amounts of from 0.1-15% by weight, based on the total preparation. If the field of application is skin, amounts of 0.1-10% by weight are preferred, and if the field of application is hair, amounts of 0.1-15% by weight are preferred. In both cases, particular preference is given to amounts of about 0.1-5% by weight.

According to a second embodiment, the compositions according to the invention comprise a protein hydrolysate. Within the scope of the application, this is understood as meaning both protein hydrolysates themselves and also condensation products thereof with

fatty acids, and quaternized protein hydrolysates. Preferred protein hydrolysates are elastin, collagen, keratin, milk protein, soybean protein, almond protein, pea protein, rice protein and wheat protein hydrolysates. Vegetable protein hydrolysates are particularly preferred. Furthermore, those protein hydrolysates which have a high proportion of the amino acids hydroxyproline and proline are particularly suitable according to the invention. The protein hydrolysates are preferably present in the compositions according to the invention in amounts of 0.05-5% by weight, based on the total composition.

According to a further preferred embodiment, the preparations according to the invention comprise a further vitamin component, chosen from panthenol, tocopherol and vitamin A and precursors and derivatives thereof.

Derivatives of panthenol which can be used according to the invention are, in particular, the esters and ethers of panthenol, and cationically derivatized panthenols. Individual representatives are, for example, panthenol triacetate, panthenol monoethyl ether and its monoacetate, and the cationic panthenol derivatives disclosed in WO 92/13829. Panthenol itself is preferred within this group. Panthenol and its derivatives are preferably present in the compositions according to the invention in amounts of 0.05-10% by weight, based on the total composition. Amounts of 0.1-5% by weight are particularly preferred.

Tocopherol and its derivatives, which include, in particular, the esters, such as the acetate, the nicotinate, the phosphate and the succinate, are preferably present in the preparations according to the invention in amounts of 0.05-1% by weight, based on the total preparation.

Suitable vitamin A components according to the invention are, for example, vitamin A acid and esters thereof, vitamin A aldehyde and vitamin A alcohol and esters thereof, such as the palmitate and the acetate. The preparations according to the invention preferably comprise the vitamin A component in amounts of 0.05-1% by weight, based on the total preparation.

According to a further preferred embodiment, the preparations according to the invention comprise a plant extract.

These extracts are usually prepared by extraction of the whole plant. In individual cases, however, it may also be preferred to prepare the extracts exclusively from flowers and/or leaves of the plant.

With regard to the plant extracts which can be used according to the invention, reference is made in particular to the extracts listed in the table starting on page 44 of the third edition of the guidelines relating to the declaration of ingredients of cosmetic compositions, published by the Industrieverband Körperpflege- und Waschmittel e.V. (IKW), Frankfurt.

According to the invention, the extracts from oak bark, stinging nettle, hamamelis, hops, camomile, burdock, horsetail, hawthorn, lime blossom, almond, aloe vera, spruce needle, roast chestnut, sandalwood, juniper, coconut, mango, apricot, lemon, wheat, kiwi, melon, orange, grapefruit, sage, rosemary, birch, mallow, lady's smock, wild thyme, yarrow, thyme, balm, restharrow, coltsfoot, marshmallow, meristem, ginseng, root ginger and green tea, in particular, can be used.

Preference is given to the extracts from oak bark, stinging nettle, hamamelis, hops, camomile, burdock,

horsetail, lime blossom, almond, aloe vera, coconut, mango, apricot, lemon, wheat, kiwi, melon, orange, grapefruit, sage, rosemary, birch, lady's smock, wild thyme, yarrow, restharrow, meristem, ginseng, root ginger and green tea.

For the use according to the invention, the extracts from almond, aloe vera, coconut, mango, apricot, lemon, wheat, kiwi, melon and green tea are very particularly suitable.

As extractants for the preparation of said plant extracts it is possible to use water, alcohols, water-alcohol mixtures, and CO_2. Of the alcohols, preference is given here to lower alcohols, such as ethanol and isopropanol, but in particular to polyhydric alcohols, such as ethylene glycol and propylene glycol, both as a sole extractant and also as a mixture with water. Plant extracts based on water/propylene glycol in the ratio 1:10 to 10:1 have proven particularly suitable.

The plant extracts can be used according to the invention both in pure form and in dilute form. If they are used in dilute form, they usually comprise about 2-80% by weight of active substance and, as solvent, the extractant or extractant mixture used in obtaining them.

In addition, it may be preferred to use mixtures of two or more, in particular of two, different plant extracts in the compositions according to the invention.

Honey extracts are obtained in an analogous manner to the plant extracts and usually comprise 1-10% by weight, in particular 3-5% by weight, of active substance. Water/propylene glycol mixtures may also be preferred extractants here.

Plant extracts are preferably used in compositions according to the invention in amounts of 0.1-20% by weight, in particular in amounts of 0.2-8% by weight. Amounts of 0.5-5% by weight may be very particularly preferred. This quantitative data is firstly based on the total composition according to the invention, and secondly on the plant extract in the form in which it is added to the composition. As already stated above, the plant extract may be pure or in the form of a solution usually containing 2-80% by weight of active substance.

With regard to the quantitative data and the formulation form of the honey extracts, the same applies as for plant extracts, where extracts containing 0.01-10% by weight, in particular 3-5% by weight, of active substance may be preferred.

In addition, the preparations according to the invention also preferably comprise a film former. Suitable film formers are primarily ionic and, in particular, nonionogenic polymers.

Preferred nonionic polymers are polyvinylpyrrolidone and vinylpyrrolidone/vinyl acetate copolymers (for example the products Luviskol® K 30, K 90, VA 64 and VA 37) and polysiloxanes (such as, for example, the commercial products Dow Corning 345, 190, 193, 200, 245, 246, 1401 and 1403).

Preferred cationic polymers according to the invention are quaternized cellulose ethers, such as, for example, the commercial product Polymer JR® 400, polysiloxanes having quaternary groups, such as Dow Corning DC® 929, dimethyldiallylammonium chloride polymers, such as Merquat® 100, acrylamide-dimethyldiallylammonium chloride copolymers, such as Merquat® 550, dimethylaminoethyl methacrylate-vinylpyrrolidone copolymers quater-

nized with diethyl sulfate, such as Gafquat® 734 and 755, vinylpyrrolidone-imidazolinium methochloride copolymers, such as the commercial products of the Luviquat® series, and quaternized polyvinyl alcohol.

Suitable zwitterionic and amphoteric polymers are, for example, acrylamidopropyltrimethylammonium chloride/-acrylate copolymers, octylacrylamide/methylmethacrylate/tert-butylaminoethyl methacrylate/2-hydroxypropyl methacrylate copolymers, such as the commercial product Amphomer®, and dimethyldiallylammonium chloride-acrylic acid copolymers, such as the commercial product Merquat® 280.

Preferred anionic polymers according to the invention are polyacrylic acids and crosslinked polyacrylic acids, such as, for example, the commercial products of the Carbopol® series, in particular Carbopol® ETD 2020, vinyl acetate/crotonic acid copolymers and terpolymers, such as the products of the Luviset® series, vinylpyrrolidone/vinyl acrylate copolymers, vinyl acetate/-butyl maleate/isobornyl acrylate copolymers, methyl vinyl ether/maleic anhydride copolymers, such as the products of the Gantrez® series, and acrylic acid/ethyl acrylate/N-tert-butylacrylamide terpolymers.

The preparations according to the invention can be formulated on an aqueous, aqueous-alcoholic or alcoholic basis. Suitable alcohols here are, in particular, lower alcohols, such as ethanol and isopropanol. Here, aqueous-alcoholic bases may comprise water and alcohol preferably in a ratio of 1:5 to 5:1.

The active ingredient combination according to the invention can be applied to the hair either in the form of a separate formulation or as an additional component in other compositions.

According to a first embodiment, the preparations according to the invention are formulated as hair tonic, hair rinse or as hair cure. Hair tonics usually remain on the hair until the next hair treatment, e.g. daily hair washing. Hair rinses are usually formulated such that rinsing out of the active ingredients is intended with water or an at least predominantly water-containing composition after the desired contact time. The contact time with the hair is generally short. Hair cures comprise the active ingredient combination in a higher concentration than hair rinses and are intended for the intensive treatment of the hair and, where appropriate, of the scalp. The contact time may be short, for example in the order of magnitude of the contact time of hair rinses, although it can also be as much as 20 minutes, depending on the degree of damage to the hair. When this contact time is over, the hair cures according to the invention can also be rinsed out with water or an at least predominantly water-containing composition; they may, however, also be left on the hair. These compositions can be formulated in a preferred variant as foam aerosols. For this, the compositions may comprise propellants. However, in this variant, preference is given to the formulation as a pump spray with air as propellant.

According to further embodiments, the compositions according to the invention may be, for example, cleansing compositions, such as shampoos, setting compositions, such as hair-setting products, hairsprays and blow-waving products, permanent shaping agents, such as permanent waving compositions and permanent fixing compositions, color-changing compositions, such as bleaching agents, oxidation colorants and tinting agents based on direct dyes, hair lotions and split-end fluids.

For the treatment of the skin, the preparations according to the invention can be formulated, for example, as skincare compositions and skin-cleansing compositions. Particularly in the case of skin-treatment compositions, preference is given according to the invention to those compositions which remain on the body, in this case the skin, following application.

Accordingly, the preparations can be formulated as solutions, oil-in-water emulsions, water-in-oil emulsions, nanoemulsions, microemulsions, in particular those of the PIT type, gels, creams, aerosols or lotions. The preparations can also be formulated in encapsulated form, for example in gelatin or polyvinyl alcohol, and in the form of liposomes, e.g. with lecithin. If these preparations comprise components which cannot be formulated in a storage-stable manner together with one or more constituent(s) of the active ingredient combination according to the invention, it is possible, as already stated above, to formulate this active ingredient component or active ingredient combination according to the invention in the form of a separate formulation and only to mix it into the preparation directly prior to application.

According to the type of composition chosen, the preparations according to the invention may comprise the further constituents customary in these compositions. Further customary constituents of the preparations according to the invention may thus be:

- anionic surfactants such as, in particular, alkylsulfates, alkylpolyglycol ether sulfates and ether carboxylic acids having 10 to 18 carbon atoms in the alkyl group and up to 12 glycol ether groups in the molecule, and also sulfosuccinic mono- and dialkyl esters having 8 to 18 carbon atoms in the alkyl group and sulfosuccinic monoalkylpolyoxyethyl

esters having 8 to 18 carbon atoms in the alkyl group and 1 to 6 oxyethyl groups,

- nonionogenic surfactants such as, in particular, the addition products of from 2 to 30 mol of ethylene oxide and/or 0 to 5 mol of propylene oxide to linear fatty alcohols having 8 to 22 carbon atoms, to fatty acids having 12 to 22 carbon atoms, to alkylphenols having 8 to 15 carbon atoms in the alkyl group, and to corresponding fatty acid amides and fatty amines, C_{12}-C_{22}-fatty acid mono- and diesters of addition products of from 1 to 30 mol of ethylene oxide to glycerol, C_8-C_{22}-alkyl mono- and oligoglycosides and ethoxylated analogs thereof, fatty acid N-alkylglucamides, addition products of from 5 to 60 mol of ethylene oxide to castor oil and hydrogenated castor oil, polyol fatty acid esters, sugar esters, sorbitan esters and polysorbates. If the nonionic surfactants contain polyglycol ether chains, they may have a conventional or narrowed homologue distribution,
- zwitterionic surfactants, in particular the so-called betaines, such as N-alkyl-N,N-dimethylammonium glycinates, for example cocoalkyldimethylammonium glycinate, N-acylaminopropyl-N,N-dimethylammonium glycinate, for example cocoacylaminopropyldimethylammonium glycinate, and 2-alkyl-3-carboxymethyl-3-hydroxyethylimidazolines having in each case 8 to 18 carbon atoms in the alkyl or acyl group, and cocoacylaminoethyl hydroxyethylcarboxymethyl glycinate,
- ampholytic surfactants, such as N-alkylglycines, N-alkylpropionic acids, N-alkylaminobutyric acids, N-alkylaminodipropionic acids, N-hydroxyethyl-N-alkylamidopropylglycines, N-alkyltaurines, N-alkylsarcosines, 2-alkylaminopropionic acids and alkylaminoacetic acids having in each case about 8 to 18 carbon atoms in the alkyl group,

- cationic surfactants of the quaternary ammonium compound type, preferably ammonium halides, in particular chlorides and bromides, such as alkyltrimethylammonium chlorides, dialkyldimethylammonium chlorides and trialkylmethylammonium chlorides, e.g. cetyltrimethylammonium chloride, stearyltrimethylammonium chloride, distearyldimethylammonium chloride, lauryldimethylammonium chloride, lauryldimethylbenzylammonium chloride and tricetylmethylammonium chloride, behenyltrimethylammonium methosulfate, and the imidazolium compounds known under the INCI names Quaternium-27 and Quaternium-83, of the esterquat type, for example based on triethanolamine, diethanolalkylamines or 1,2-dihydroxypropyldialkylamines on the one hand and fatty acids, such as caproic acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, isostearic acid, stearic acid, oleic acid, elaidic acid, arachidic acid, behenic acid and erucic acid or technical-grade mixtures thereof, as are produced, for example, during the pressurized cleavage of natural fats and oils, such as, for example, the products available under the trade names Dehyquart® and Armocare®, and the alkylamidoamine type, such as the stearamidopropyldimethylamine available commercially under the name Tegoamid® S 18,
- symmetrical and unsymmetrical, linear and branched dialkyl ethers having a total of between 12 and 36 carbon atoms, in particular 12 and 24 carbon atoms, such as, for example, di-n-octyl ether, di-n-decyl ether, di-n-nonyl ether, di-n-undecyl ether and di-n-dodecyl ether, n-hexyl n-octyl ether, n-octyl n-decyl ether, n-decyl n-undecyl ether, n-undecyl n-dodecyl ether and n-hexyl n-undecyl ether and di-tert-butyl ether, diisopentyl ether, di-3-ethyldecyl ether, tert-butyl n-octyl ether, isopentyl n-octyl ether and 2-methylpentyl n-octyl ether,

- antifoams, such as silicones,
- thickeners, such as agar agar, guar gum, alginates, xanthan gum, gelatins, pectins, hydroxyethylcellulose, and polyacrylamides and copolymers thereof,
- structurants, such as maleic acid,
- mono-, di- and oligosaccharides, such as, for example, glucose, galactose, fructose, fruit sugar and lactose,
- ceramides,
- vegetable oils, such as jojoba oil, sunflower oil, orange oil, almond oil, wheatgerm oil and peach stone oil, and paraffin oils,
- saturated and unsaturated, linear and branched fatty alcohols having 8 to 22 carbon atoms, and mixtures thereof, which form by reducing naturally occurring triglycerides such as beef tallow, palm oil, groundnut oil, rapeseed oil, cottonseed oil, soy oil, sunflower oil and linseed oil,
- monoesters of fatty acids with alcohols having 6 to 24 carbon atoms,
- hair-conditioning compounds of the phospholipid type, for example soy lecithin, egg lecithin and cephalins,
- perfume oils, dimethyl isosorbide and cyclodextrins,
- solubility promoters, such as ethanol, isopropanol, ethylene glycol, propylene glycol, glycerol and diethylene glycol,
- dyes to color the composition,
- antidandruff active ingredients, such as piroctone olamine, zinc omadine and climbazole,
- further substances for adjusting the pH,
- active ingredients, such as allantoin, pyrrolidonecarboxylic acids and bisabolol,
- light protection agents,
- consistency-imparting agents, such as sugar esters, polyol esters or polyol alkyl ethers,

- fats and waxes, such as spermaceti, beeswax, montan wax and paraffins,
- fatty acid alkanolamides,
- opacifiers, such as latex, styrene/PVP and styrene/acrylamide copolymers,
- pearlizing agents, such as ethylene glycol mono- and distearate, and PEG-3 distearate,
- complexing agents, such as EDTA, NTA, β-alanine-diacetic acid and phosphonic acids,
- direct dyes,
- so-called coupler and developer components as oxidation dye precursors,
- reducing agents such as e.g. thioglycolic acid and derivatives thereof, thiolactic acid, cysteamine, thiomalic acid and α-mercaptoethanesulfonic acid,
- oxidizing agents, such as hydrogen peroxide, potassium bromate and sodium bromate,
- propellants, such as propane/butane mixtures, N_2O, dimethyl ether, CO_2, N_2 and air, and
- antioxidants.

With regard to further compounds, reference is made to the handbooks known to the person skilled in the art, e.g. K. Schrader, Grundlagen und Rezepturen der Kosmetika [Cosmetic fundamentals and formulations], 2nd edition, Hüthig Buch Verlag, Heidelberg, 1989.

The pH of the preparations according to the invention may be, in principle, between 4.5 and 7, the person skilled in the art taking into consideration instabilities known to him, for example of the basic substance panthenol in the alkaline medium. The pH of the compositions according to the invention is preferably between 6 and 6.5. To adjust this pH, virtually any acid useable for cosmetic purposes can be used. Food acids are usually used. Food acids are understood as meaning those acids which are taken in in the course of usual food consumption and have positive effects on the human

organism. Food acids are, for example, acetic acid, lactic acid, tartaric acid, citric acid, malic acid, ascorbic acid and gluconic acid. Within the scope of the invention, the use of lactic acid and citric acid is particularly preferred.

The invention further provides for the use of an active ingredient combination consisting of biotin and at least one glycoprotein for treating human skin and human hair, and for the use of this active ingredient combination for increasing the protein production in human cells.

Examples

1. Determination of the protein production in human cells

Normal human keratinocytes were placed in culture in 24-well dishes in accordance with the supplier's instructions (PROMO CELL) (5% of CO_2, 37°C, saturated water vapor atmosphere) and placed in subconfluence with the substances dissolved in the medium. After 24 hours, the total protein was determined in accordance with Lowra (n = 6 wells). The total protein is a measure of the biomass produced, which can be regarded as a characteristic value of the vitality of the cell.

The compositions investigated and the results obtained for the protein formation are given in the table below. Mixture C1 is a physiological sodium chloride solution diluted by a factor of 10. Unless stated otherwise, all amounts are parts by weight.

	C1	C2	C3	E1
Components:				
• Sodium chloride	0.09	0.09	0.09	0.09
• Biotin	-	0.00001	-	0.00001
• Phytodermine® [1]	-	-	0.5	0.5
• Water	<- - - - - ad 100 - - - - - - - - - ->			
Amount of protein formed [%]	100	98	99	138

[1] Proteins from the soybean (hydroxyproline-rich glycoproteins as existensins, arabinose galactans as proteoglycan equivalents and proline-rich glycoproteins from the plant matrix of the soybean in natural distribution: INCI name: Soybean (Glycine Soya) protein) (CLR Chemisches Laboratorium Dr. Kurt Richter)

2. Working Examples

Unless stated otherwise, all amounts are parts by weight.

2.1 Hair tonic

Biotin	0.005
Phytodermin®	0.5
D-panthenol	0.2
Gluadin® W 20[2]	0.1
Cremophor® RH 40[3]	0.3
Perfume oil	0.15
Ethanol	30.0
Water	ad 100

[2] Wheat protein hydrolysate (20% of active substance in water; INCI name: Aqua (and) Hydrolized Wheat Protein (and) Sodium Benzoate (and) Phenoxyethanol (and) Methylparaben (and) Propylparaben) (HENKEL)

[3] Hydrogenated castor oil + 45 EO (INCI name: PEG-40 Hydrogenated Castor Oil) (BASF)

2.2 Hair tonic

Biotin	0.003
Phytodermin®	0.3
D-panthenol	0.1
Honey extract HS 2660 G[4]	0.2
Gluadin® W 40[5]	0.1
Carbopol® ETD 2020[6]	0.1
Cremophor® RH 40	0.3
Perfume oil	0.15
Isopropanol	35.0
Water	ad 100

[4] Honey extract (12-15% of active substance; INCI name: honey) (GRAU AROMATICS)

[5] Wheat protein hydrolysate (40% of active substance in water; INCI name: Aqua (and) Hydrolized Wheat Protein (and) Sodium Benzoate (and) Phenoxyethanol (and) Methylparaben (and) Propylparaben) (HENKEL)

[6] Polyacrylic acid copolymer (INCI name: Acrylates/-C10-30 Alkyl Acrylate Crosspolymer) (GOODRICH)

Patent Claims

1. A preparation for treating human skin and human hair, characterized in that it comprises an active ingredient combination consisting of
   - biotin and
   - at least one glycoprotein.

2. The preparation as claimed in claim 1, characterized in that the glycoprotein is a vegetable glycoprotein.

3. The preparation as claimed in claim 2, characterized in that the glycoprotein originates from a primary plant cell wall.

4. A preparation as claimed in either of claims 2 and 3, characterized in that the glycoprotein is chosen from the glycoproteins from soybeans, rice, oats, wheat, potatoes, peaches, almonds, mushrooms and peas.

5. The preparation as claimed in any one of claims 1 to 4, characterized in that the carbohydrate portion of the glycoprotein is chosen from galactose, arabinose, mannose, glucose and fucose.

6. The preparation as claimed in any one of claims 1 to 5, characterized in that the glycoprotein is present in an amount of from 0.0001-5% by weight, based on the total preparation.

7. The preparation as claimed in any one of claims 1 to 6, characterized in that the biotin is present in an amount of from 0.000001-0.5% by weight.

8. The preparation as claimed in any one of claims 1 to 7, characterized in that it further comprises a penetration auxiliary.

9. The preparation as claimed in any one of claims 1 to 8, characterized in that it further comprises a protein hyrolysate.

10. The preparation as claimed in any one of claims 1 to 9, characterized in that it further comprises a vitamin, chosen from panthenol, tocopherol and vitamin A and precursors and derivatives thereof.

11. The preparation as claimed in any one of claims 1 to 10, characterized in that it further comprises a plant or honey extract.

12. The preparation as claimed in any one of claims 1 to 11, characterized in that it further comprises a film former.

13. The preparation as claimed in any one of claims 1 to 12, characterized in that it remains on the hair or the skin following application.

14. The use of an active ingredient combination consisting of
- biotin and
- at least one glycoprotein
for treating human skin and human hair.

15. The use of an active ingredient combination consisting of
- biotin and
- at least one glycoprotein
for increasing the protein production in human cells.

Abstract of the Disclosure

The present invention relates to a composition for treating hair or skin containing biotin and at least one glycoprotein. The present invention also provides a method of treating hair or skin using the same, and a method of increasing protein production in human cells that includes applying to hair or skin an active ingredient combination containing biotin and at least one glycoprotein.

"Express Mail" mailing label number EL615776145US. Date of Deposit _____.

PTO/SB/01 (6-95)
Approved for use through: 10/31/98 OMB 0651-0032
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Type a plus sign (+) inside this box → ☐

0010/PTO
Rev. 6/95

U S Department of Commerce
Patent and Trademark Office

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

☐ Declaration Submitted with Initial Filing OR ☒ Declaration Submitted after Initial Filing

Attorney Docket Number	H 2867 PCT/US
First Named Inventor	Bernecker, Ullrich
COMPLETE IF KNOWN	
Application Number	
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:
My residence, post office address, and citizenship are as stated below next to my name.
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

PREPARATION FOR TREATING HUMAN SKIN AND HUMAN HAIR COMPRISING A SPECIAL ACTIVE INGREDIENT COMBINATION, AND THE USE OF THIS ACTIVE INGREDIENT COMBINATION

(Title of the Invention)

the specification of which
☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 05/15/1999 as United States Application Number or PCT International Application Number PCT/EP99/03362 and was amended on (MM/DD/YYYY) _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
198 23 552.6	Germany	05/27/1998	☐	☐	☒

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below

Application Number(s)	Filing Date (MM/DD/YYYY)	
		☐ Additional provisional application numbers are listed on a supplemental priority sheet attached hereto

Burden Hour Statement: This form is estimated to take .4 hours to complete Time will vary depending upon the needs of the individual case Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington DC 20231.

Type a plus sign (+) inside this box → ☐ H 2867 PCT/US

DECLARATION — Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365© of any PCT international application designating the United Sates of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112 1 acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1 56 which became available between the filing date of the prior application and the national or PCT international filing date of this application

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*
	PCT/EP99/03362	05/15/1999	

☐ Additional U S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Firm Name OR — Customer Number or label

☒ List Attorney(s) and/or agent(s) name and registration number below:

Name	Registration Number	Name	Registration Number
Wayne C. Jaeschke	21,062		
Glenn E. J. Murphy	33,539		
Stephen D. Harper	33,243		
Kimberly R. Hild	39,224		

☐ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

Please direct all correspondence to: ☒ Customer Number or label **00423** OR ☒ Fill in correspondence address below

Name	Kimberly R. Hild						
Address	Henkel Corporation						
Address	2500 Renaissance Blvd, Suite 200						
City	Gulph Mills			State	PA	Zip	19406
Country	USA	Telephone	610-278-4964	Fax	610-278-6548		

hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name	**Ullrich**	Middle Initial		Family Name	**Bernecker**	Suffix e.g. Jr.	
Inventor's Signature	Ullrich Bernecker					Date	12-19-00
Residence: City	**Huertgenwald** DEX	State		Country	**Germany**	Citizenship	**Germany**
Post Office Address	**Maubacher Strasse 54**						
Post Office Address							
City	**52393 Huertgenwald**	State		Zip		Country	**Germany**	Applicant Authority	

☒ Additional inventors are being named on supplemental sheet(s) attached hereto

Type a plus sign (+) inside this box → ☐ H 2867 PCT/US

ADDITIONAL INVENTOR(S)
Supplemental Sheet

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

2-00

Given Name	Detlef	Middle Initial		Family Name	Hollenberg	Suffix e.g. Jr.	
Inventor's Signature	Detlef Hollenberg				Date	12-19-00	
Residence: City	Erkrath DEX	State		Country	Germany	Citizenship	Germany
Post Office Address	Fliederweg 31						
Post Office Address							
City	40699 Erkrath	State		Zip		Country	Germany	Applicant Authority	

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix e.g. Jr.	
Inventor's Signature					Date		
Residence: City		State		Country		Citizenship	
Post Office Address							
Post Office Address							
City		State		Zip		Country		Applicant Authority	

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix e.g. Jr	
Inventor's Signature					Date		
Residence: City		State		Country		Citizenship	
Post Office Address							
Post Office Address							
City		State		Zip		Country		Applicant Authority	

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix e.g. Jr.	
Inventor's Signature					Date		
Residence: City		State		Country		Citizenship	
Post Office Address							
Post Office Address							
City		State		Zip		Country		Applicant Authority	

☐ Additional inventors are being named on supplemental sheet(s) attached hereto